CDM Smith

Memorandum

To: *Mr. Mike Cirian, P.E., EPA Remedial Project Manager*

From: *August Welch, Damon Repine, Sean Coan*

Date: *September 21, 2016*

Subject: Onsite Technical Review Report #6 for CFAC RI/FS Phase I – Site Visits Conducted August 17, 2016 and September 15, 2016

The following memo summarizes CDM Smith's on-site technical review conducted on two separate site visits on August 17, 2016 and September 15, 2016 for the Phase I RI/FS work being conducted by Roux Associates, Inc. (Roux) at the Columbia Falls Aluminum Plant (CFAC). The technical memorandum is organized by a summary of the observations of site activities, a summary of open items or issues that require further discussion with the EPA, and a summary of previously open items which have been addressed.

Site Activities

The following section is divided into sub-headings for each site visit where separate work activities were being performed by Roux.

August 17, 2016 Site Visit – Test Pit Investigation in Asbestos Landfills:

On August 17, 2016 CDM Smith observed Roux, Hydrometrics and Cascade Drilling conduct part of their test pit investigation in the asbestos landfill areas. Roux and Hydrometrics personnel were on site to provide direction and observation, while Cascade Drilling provided the backhoe operator to perform the physical excavation work.

The objectives of the test pit investigation were not made clear in Roux's work plan. In Section 5.3.1 of the Work Plan, the document states that ground-penetrating radar (GPR) and test pitting will be conducted to define the extent and contents of the asbestos landfills. The Work Plan does not specify the number of test pits to be excavated and does not provide specific locations or depths of exploration for the test pits. The Sampling and Analysis Plan (SAP) also did not provide any information on whether analytical samples would be collected or how conditions in the Asbestos Landfills would be documented.

Upon CDM Smith's arrival at the site, Roux had already completed the test pit investigation at the South Asbestos Landfill area, which is located to the south of the East Landfill and South Leachate Pond areas. Roux and Hydrometrics reported that some non-friable transite pipe and some asbestos-containing pipe wrap sealed in plastic bags were encountered in one of the test pits at a depth of approximately 6-inches to 1-foot below ground surface (bgs). At the test pit where presumed asbestos containing materials (PACM) were encountered, the excavation was stopped and the test pit was backfilled. Observations were recorded by Roux in the field logbook.

CDM Smith observed Roux perform test pitting at several locations in the North Asbestos Landfill area. Test pits were advanced to approximately 10 feet bgs and visual observations were performed by Roux and Hydrometrics for PACM. No PACM was observed in any of the three test pits that CDM Smith observed. CDM Smith noted that no engineering controls or PPE were being used to protect the workers against possible exposure to airborne asbestos. CDM Smith discussed the matter with the EPA and the EPA recommended to Roux and Hydrometrics that at a minimum, water should be used to wet the soil during excavation to control dust and limit the potential for airborne asbestos exposure. During test pit activities on the following day, Cascade Drilling used their water tank to wet soil prior to and during excavation and backfill of the test pits. CDM Smith was not on site to observe the use of water during excavation.

September 15, 2016 Site Visit – Low Flow Groundwater Sampling

On September 15, 2016 CDM Smith observed Roux and Hydrometrics conduct low flow groundwater sampling activities at two of the groundwater monitoring wells in the sampling program. Wells were purged using a bladder pump with low flow purging methods and groundwater samples were collected into laboratory supplied containers. CDM Smith observed all of the stages of sampling including installation of the pumps and tubing, well purging and monitoring of water quality parameters using a flow through cell, measuring of depth to water, collection of the groundwater sample for laboratory analysis and decontamination of equipment.

In general, observations of the purging and sampling activities confirmed that the procedures used were in accordance with general industry practice and no deficiencies in techniques were noted that CDM Smith believes could potentially affect the quality of the analytical data. However, several inconsistencies were noted in the procedures being followed compared with the standard operating procedures (SOPs) provided in Roux's SAP. The inconsistencies in the methods used in the field compared to the SOPs provided in the SAP are summarized as follows:

- SOP 6.4 For Measuring Quality Parameters of Water Samples, Section 2.2 – The SOP states that calibration of the water quality meters is to be performed at the beginning and end of each day's use. At the end of each day a calibration check is to be performed to verify the instrument remained in calibration throughout the day. CDM Smith noted that the calibration of the instrument was performed at the start of each day but that a calibration check at the end of the day was not being performed.

- SOP 6.4 For Measuring Quality Parameters of Water Samples, Section 2.5 – The SOP states that a minimum of two calibration standards should be used to bracket the instruments measurement range for all parameters except oxidation reduction potential (ORP). CDM Smith noted that the water quality instrument being used was a Horiba U-52 and that calibration was being performed using an "auto-calibration" solution which uses a one-point calibration for conductivity, pH, dissolved oxygen (DO) and turbidity. The "auto-calibration" solution does not calibrate the ORP probe and a separate standard must be used to check or calibrate the ORP probe. CDM Smith understands that the use of the auto calibration feature of the Horiba U-52 is an industry standard practice and we do not believe that this deviation from the SOP would have a significant effect on the water quality data. The ORP probe is calibrated at the factory but because

the ORP probe was not calibrated or checked in the field, any recorded data for ORP cannot be verified.

- SOP 4.4 For Sampling Groundwater Monitoring Wells for Dissolved Constituents Using Low Stress (Low Flow) Methods, Section 3.1 – The section of the SOP that describes decontamination of the sampling pumps describes a rigorous procedure where the pump is first operated in a container filled with potable water to pre-rinse for 5 minutes, then the pump is operated in a container filled with an Alconox detergent solution to wash for 5 minutes, then the pump is operated in a third container filled with potable water to rinse for 5 minutes. After the three step wash and rinse procedure is completed then the pump is disassembled and the parts are then washed and scrubbed in an Alconox solution before being rinsed with potable water and then finally rinsed with de-ionized water prior to re-assembling the pumps. CDM Smith observed that QED bladder pumps were being used and that disposable bladders were used for each new well. The decontamination procedure that was observed by CDM Smith consisted of disassembling the pump, replacing the disposable bladder, washing and scrubbing the pump parts with an Alconox solution and then rinsing the pump parts with de-ionized water.

The methods used for calibration of the water quality instrument and decontamination of the sampling pump equipment were generally consistent with standard industry practices and CDM Smith does not believe that the methods used posed a significant risk for cross-contamination or otherwise compromised the quality of the data collected. However, inconsistencies between the methods used in the field compared with the procedures described in the SOPs must be noted as such.

Open Action Items/Further Discussion with EPA Needed

CDM Smith confirmed through a phone call to Roux personnel on August 18, 2016 that they were implementing EPA's recommendation of using water to control dust during excavation of the test pits in the Asbestos Landfill Areas. No further action was necessary regarding the issue. It is still not clear from the Work Plan or other associated documents what the objectives of the test pit investigation in the Asbestos Landfills are. If conclusions from the investigation are used in the Phase I RI/FS report, the EPA should note that the original documents did not clearly state what the objectives of the investigation were.

CDM Smith noted several inconsistencies with the groundwater sampling techniques being used in the field compared to the written procedures provided in the SOPs listed in the SAP. Although the inconsistencies were generally considered minor items that are not likely to have a negative impact on the quality of the data, the inconsistencies must be noted as such and could be used during future review of the groundwater sampling data.

Previously Open Items That Have Been Addressed

There were no previously open items remaining from CDM Smith's previous site visit that was summarized in the Technical Review Report #5 dated August 8, 2016.

Oversight Schedule

CDM Smith has completed on-site technical review period for Phase I of the RI/FS. CDM Smith will continue to stay in communication with Roux personnel and provide technical review services for the EPA on an as-needed basis.